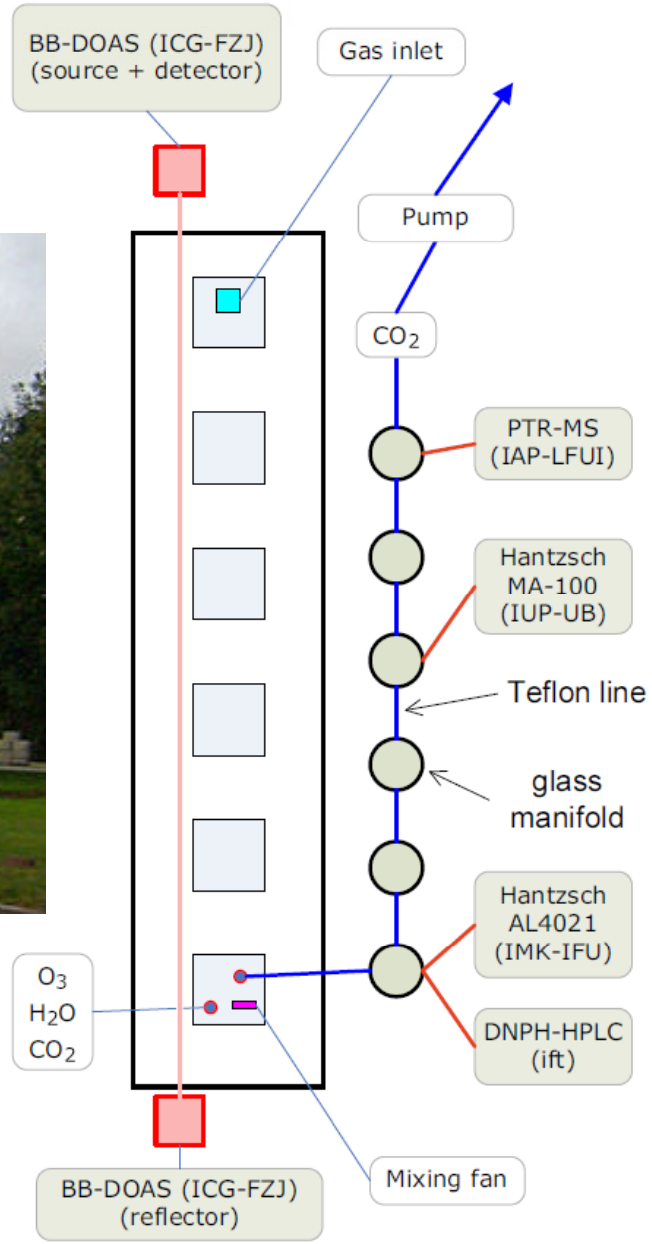
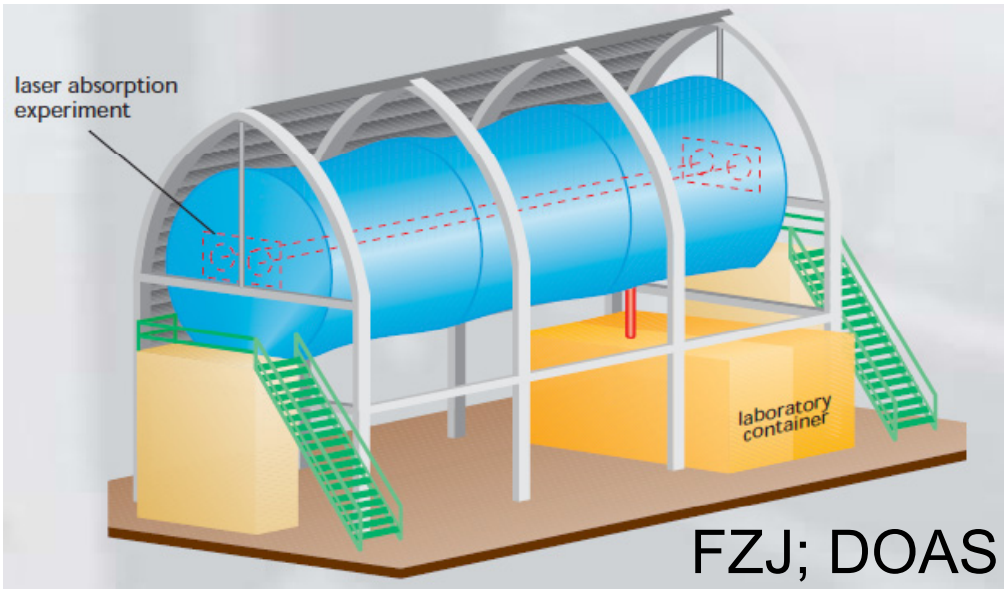
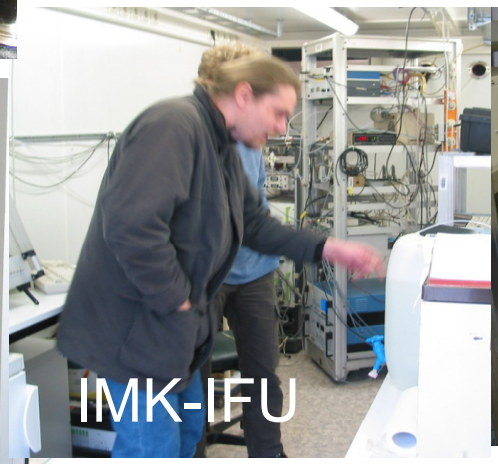
Intercalibrations of Formaldehyde Techniques

SAPHIR Chamber at Research Centre Jülich (FZJ)

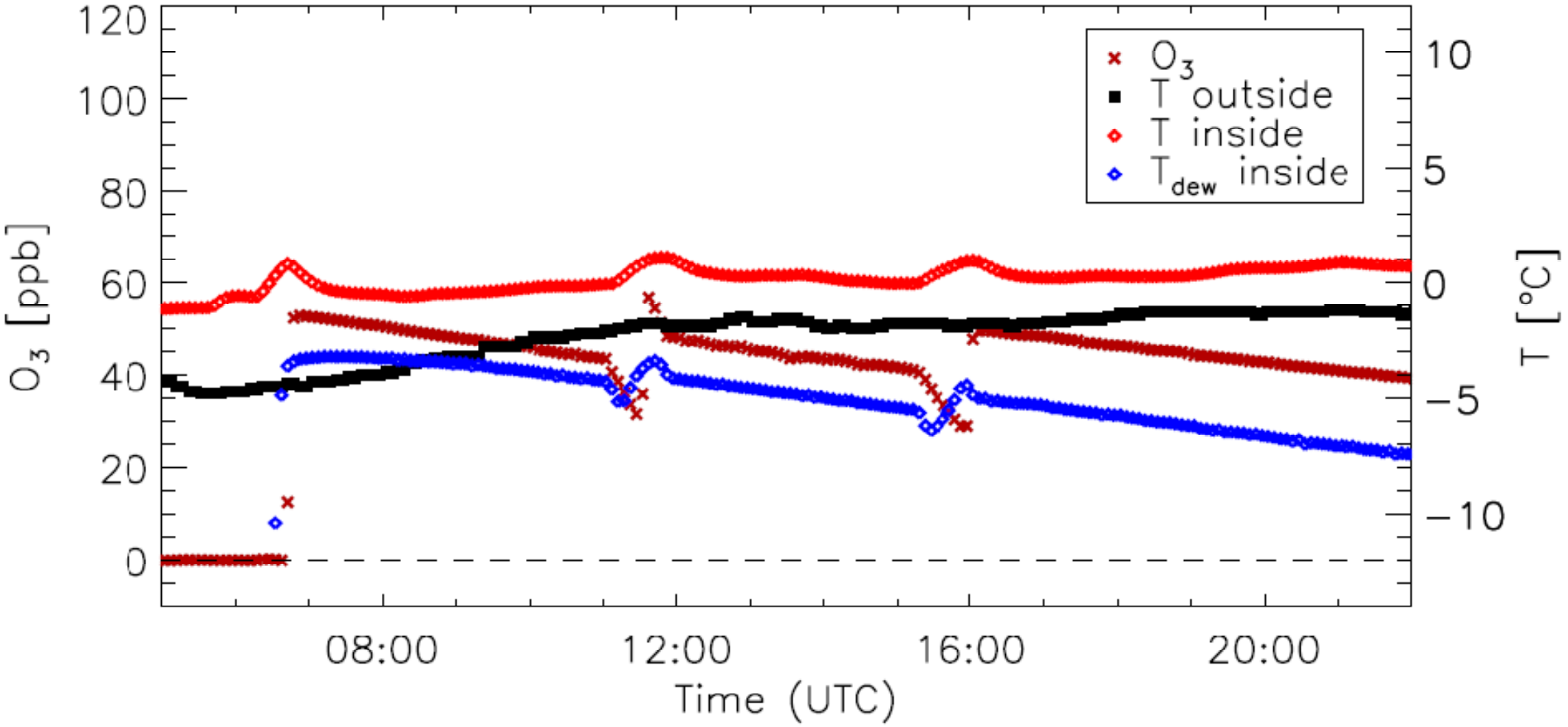


ACCENT Formaldehyde Intercomparison



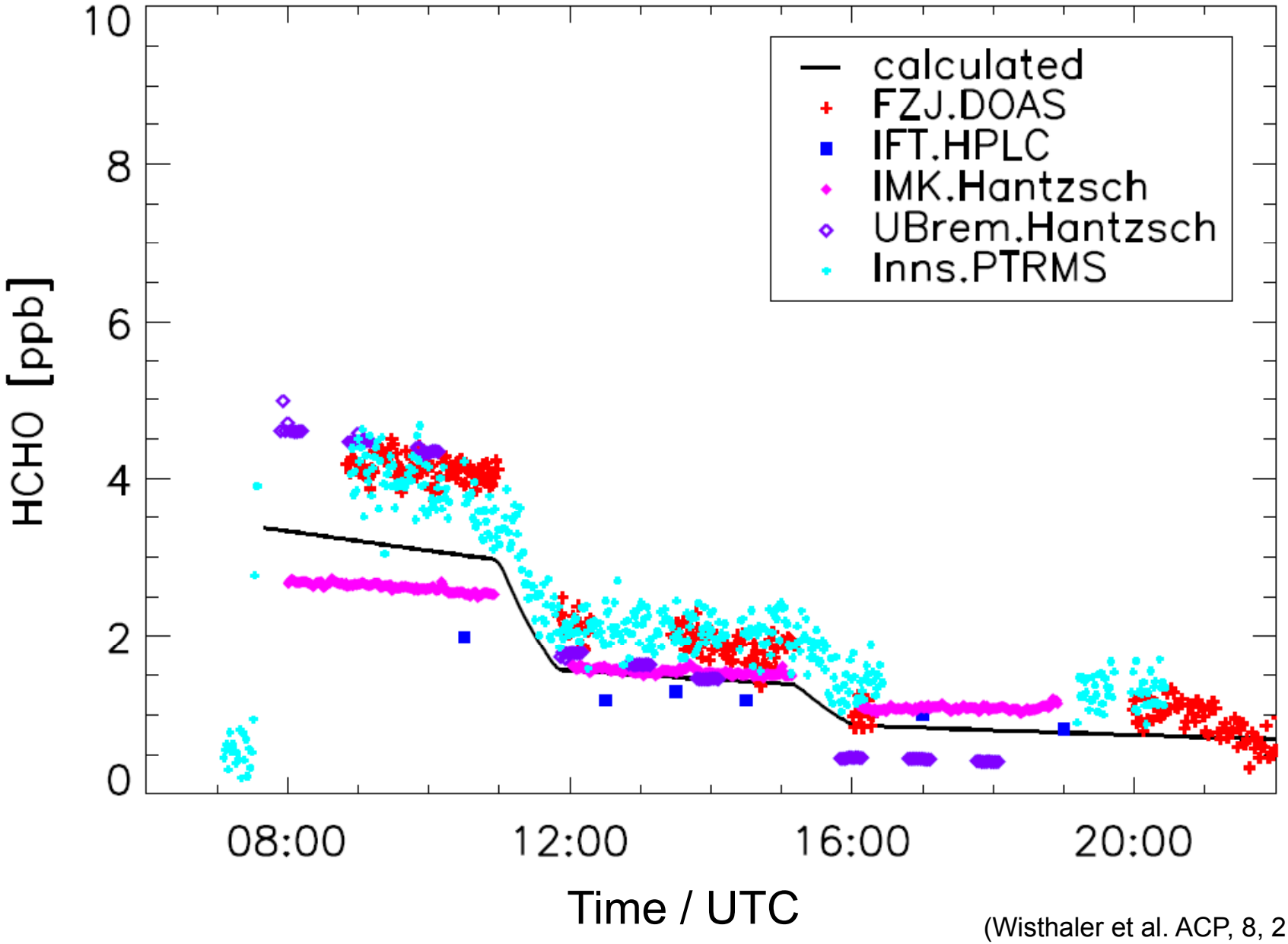


ACCENT Formaldehyde Intercomparison



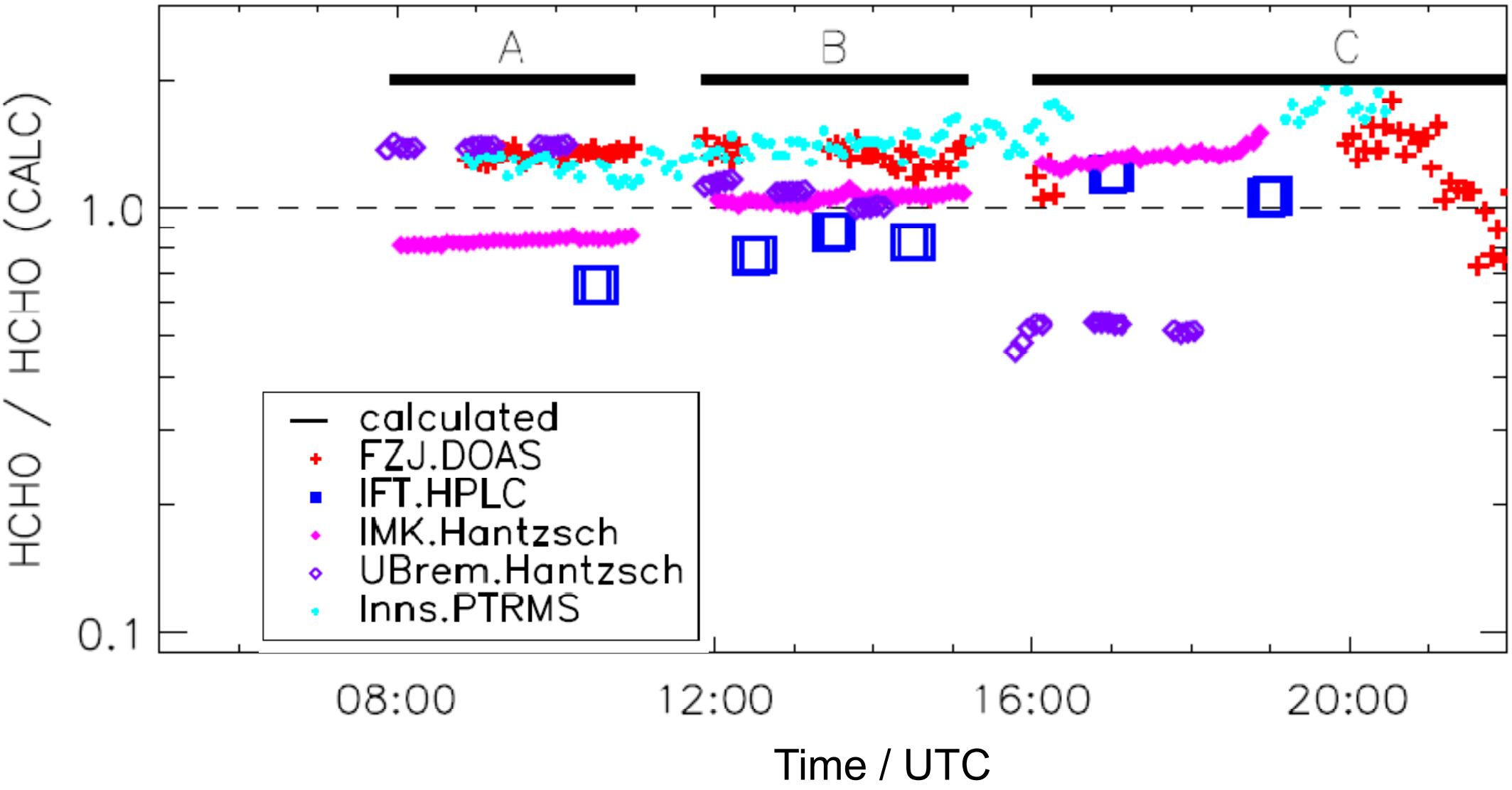
(Wisthaler et al. ACP, 8, 2189–2200, 2008)

ACCENT Formaldehyde Intercomparison



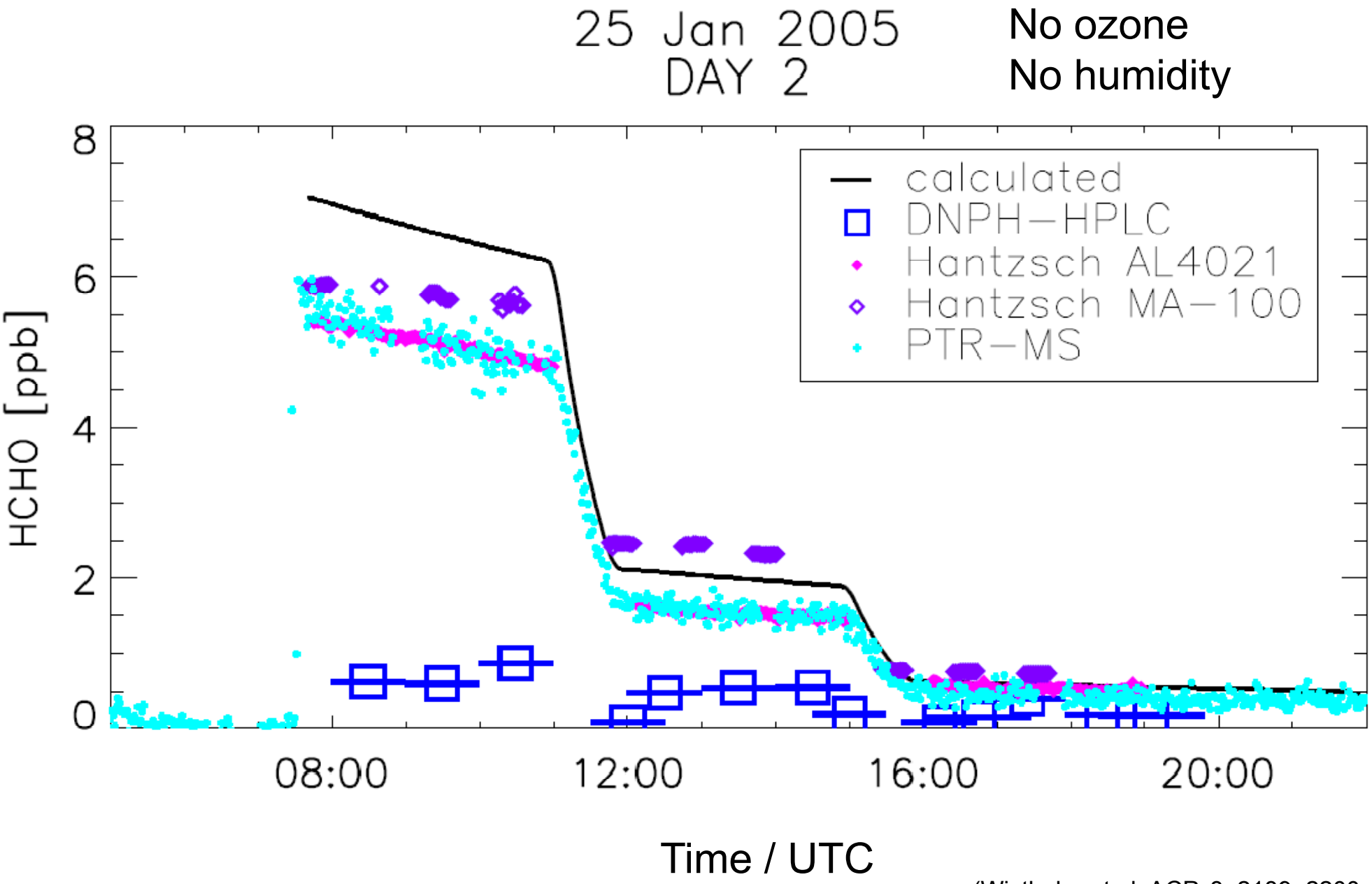
(Wisthaler et al. ACP, 8, 2189–2200, 2008)

ACCENT Formaldehyde Intercomparison



(Wisthaler et al. ACP, 8, 2189–2200, 2008)

ACCENT Formaldehyde Intercomparison



(Wisthaler et al. ACP, 8, 2189–2200, 2008)

Umwelt Bundes Amt
Für Mensch und Umwelt

ACCENT Formaldehyde Intercomparison

Conclusions:

- Due to injection uncertainties, calculated HCHO could not be used as a reference standard.
- In dry synthetic air, hydrazine-to-hydrazone conversion was greatly suppressed in the DNPH cartridges resulting in highly under estimated HCHO levels by the DNPH-HPLC.
- With O_3 present at 44±2 nmol mol^{-1} both DOAS and PTR-MS produced significantly higher levels than the Hantzsch AL4021 and the DNPH-HPLC methods. The bias varied with time and/or HCHO concentration and remains unexplained so far.
- The PTR-MS in its optimized mode of operation proved to be a promising tool for online sub-ppb detection of HCHO, also at low air humidity (<1%).
- A validated reference standard should be developed against which the accuracy of the individual instruments can be assessed.